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Via Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Ex Parte* Notice: *Promoting Investment in the 3550-3700 MHz Band* – GN Docket No. 17-258

Dear Ms. Dortch:

On February 8, 2018, Michael Fitzpatrick, Head of Regulatory Advocacy at the General Electric Company ("GE"), Ken Stewart, Entrepreneur in Residence at GE Ventures, Vijay Venkateswaran, Entrepreneur in Residence at GE Ventures, Regina Keeney of Lawler, Metzger, Keeney & Logan, LLC, and I met with Commissioner Mignon Clyburn, Louis Peraertz, Legal Advisor to Commissioner Clyburn, and Pooja Tolani from Commission Clyburn's office, regarding the Commission's pending Notice of Proposed Rulemaking in the above-captioned proceeding.[1]

At this meeting, GE's representatives urged the Commission to preserve its innovative census-tract licensing framework for the Citizens Broadband Radio Service ("CBRS") as a means of increasing participation in the 3.5 GHz spectrum auction and promoting U.S. leadership in 5G deployment. With census-tract licensing for Priority Access Licenses ("PALs"), a broad range of parties will bid for access to licensed spectrum, develop dynamic, diverse uses of the 3.5 GHz band, and maximize the value of CBRS licenses. Spectrum is an essential input for myriad activities around the United States that generate important economic, social, safety, and other public interest benefits. GE, its IIoT customers, and other diverse users will make intensive use of their licensed spectrum with targeted, localized wireless network deployments that will generate a wave of new cutting-edge jobs and economic growth in a mix of urban, suburban, rural, and remote areas. As a company that enables digital industrial and manufacturing infrastructure for its customers, GE agrees that advancing 5G build-out and maintaining U.S. 5G leadership are crucial national goals. The most certain and rapid way to

[1] *See Promoting Investment in the 3550-3700 MHz Band*, Notice of Proposed Rulemaking and Order Terminating Petitions, 32 FCC Rcd 8071 (2017) ("*NPRM*").

realize those goals is to cultivate a broad-based, heterogeneous 5G ecosystem that includes a diversity of new innovators and existing operators, technology vendors, and spectrum users.

We explained at these meetings that census-tract licensing is crucial to GE and its industrial and critical-infrastructure customers, since the CBRS band is an ideal spectrum platform for the "Industrial Internet of Things" ("IIoT"). The manufacturing sector is already a critical engine of productivity for the U.S. economy, generating a gross output of $5.9 trillion in 2013, which represented 35.4% of the U.S. gross domestic product that year. Multiple observers and analysts have previously concluded that IIoT will serve as a unique catalyst for substantial growth throughout the industrial and manufacturing sector and in the global and U.S. economies more generally. For instance, Accenture estimates that the IIoT could add $14.2 trillion to the global economy by 2030, and projects that the U.S. economy will gain at least $6.1 trillion in cumulative U.S. GDP by that same year.[2]

Robust IIoT applications require significant spectrum, secure localized networks, and specialized technology, however, and today industrial and critical-infrastructure entities are typically unable to obtain the necessary wireless functionality from commercial mobile operators on a cost-effective basis. The existing CBRS licensing framework will for the first time enable these entities to control their own secure, private LTE networks (upgradeable to 5G) and gain meaningful access to licensed, interference-protected spectrum by actively participating in 3.5 GHz PAL auctions. As long as the Commission retains census-tract licensing across all areas (urban, suburban, rural), IIoT operations at 3.5 GHz should provide secure, reliable, and cost-effective connectivity, functionality, and bandwidth on a localized basis.

In contrast, licensing CBRS on a Partial Economic Area ("PEA") basis would exponentially raise the cost of PALs and convert licensed CBRS spectrum into a commercial mobile band like most others, controlled by the major carriers. GE's industrial and critical-infrastructure customers would be highly unlikely to bid for PEA licenses at auction, even in key, targeted geographic areas. It would not be economically rational for these entities to obtain PEA licenses covering territory extending far beyond their geographically focused deployments, whether in urban, suburban, or rural areas. In our meeting, we provided maps comparing the geographically limited signal coverage at potential IIoT private network deployment sites (a hospital, an airport, and a utility facility) to the surrounding census tracts and PEAs. (Copies of these maps are attached to this *ex parte* notice.)

The Commission's secondary market mechanisms would not alleviate the harms associated with PEA-based licensing at 3.5 GHz. There are numerous factors that would deter large carriers from making sufficient CBRS spectrum available to non-traditional spectrum users,

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[2] Paul Daugherty and Bruno Berthon, *Winning with the Industrial Internet of Things: How to Accelerate the Journey to Productivity and Growth*, ACCENTURE, at 2-3 (2015), https://www.accenture.com/t00010101T000000Z__w__/at-de/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Dualpub_11/Accenture-Industrial-Internet-of-Things-Positioning-Paper-Report-2015.ashx.

and even where available there would be high transaction costs associated with leasing or partitioning PAL spectrum.

If the Commission moves to PEA-based (or county-based) licensing at 3.5 GHz, GE may on behalf of its large industrial customer base pursue other regulatory routes to obtain licensed spectrum that supports the IIoT's future growth. At 3.5 GHz, GE might seek a mechanism similar to the Contained Access Facility proposal previously considered in this band. Elsewhere, it will have to advocate for innovative licensing policies in other newly available commercial bands – including the 3.7-4.2 GHz band – which offer substantial spectrum that could support the deployment of geographically targeted, private LTE and 5G networks at both indoor and outdoor industrial/critical-infrastructure facilities.

In considering its options in this proceeding, the Commission should recognize that its "Innovation Band" at 3.5 GHz is a dramatic success so far, triggering a surge in wireless industry participation by non-traditional companies, including GE and other industrial and critical-infrastructure entities such as the Port of Los Angeles.[3] This band has sparked new investment and commercial activity, innovative business models, digital infrastructure development, and collaboration between stakeholders. GE and its industrial and critical-infrastructure customers are eager to utilize the CBRS band to bring the full benefits of the IIoT revolution to the American public and the U.S. industrial and manufacturing sectors. The Commission should maintain census-tract licensing at 3.5 GHz and take full advantage of this historic opportunity to spur innovation, enormous economic growth, and important public safety benefits through widespread scaling of the IIoT.

Pursuant to section 1.1206(b)(2) of the Commission's rules, 47 C.F.R. § 1.1206(b)(2), this *ex parte* notification and attached maps are being filed electronically for inclusion in the public record of the above-referenced proceeding.

Respectfully submitted,

/s/ *Stephen J. Berman*
Stephen J. Berman

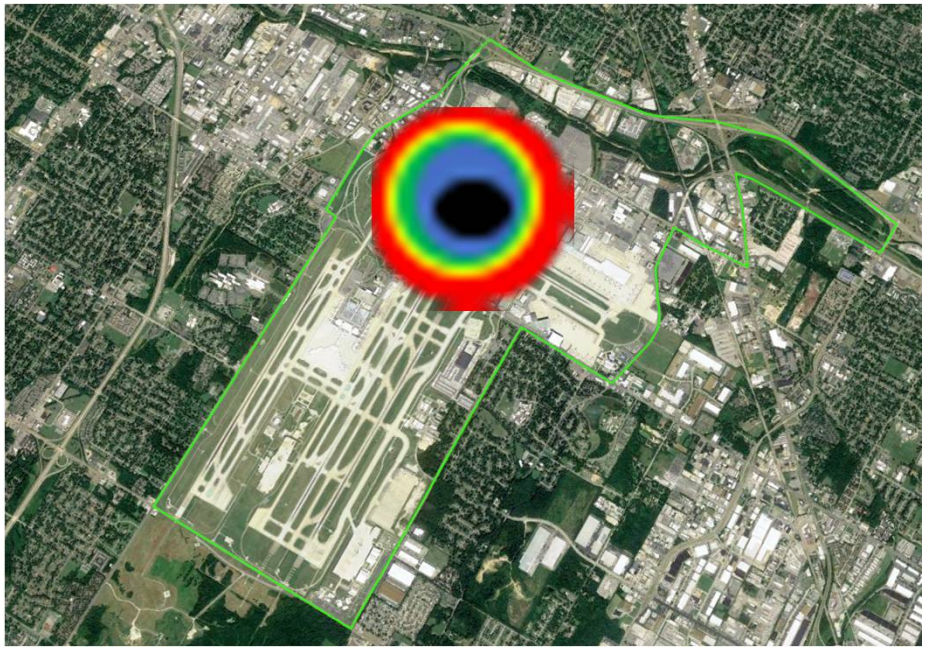
Attachment

cc: Commissioner Mignon Clyburn
Louis Peraertz
Pooja Tolani

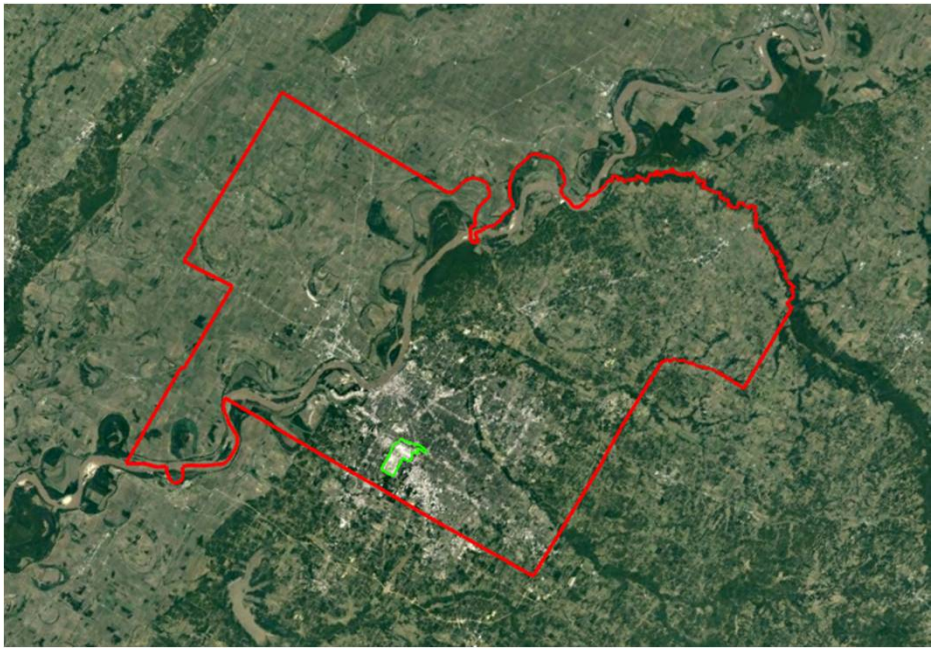
[3] *See* Letter from Eugene D. Seroka, Executive Director of The Port of Los Angeles, to Hon. Ajit Pai, Chairman of the Federal Communications Commission, *et al*., GN Docket No. 17-258 (Jan. 29, 2018).

Private LTE Network
Aircraft Operations and Maintenance

Defined coverage of an outdoor Category B CBSD private LTE network deployment for aircraft operations and maintenance services and support at an airport compared to the census tract containing the network (Green). The deployment site is approximately 2.4 km across.

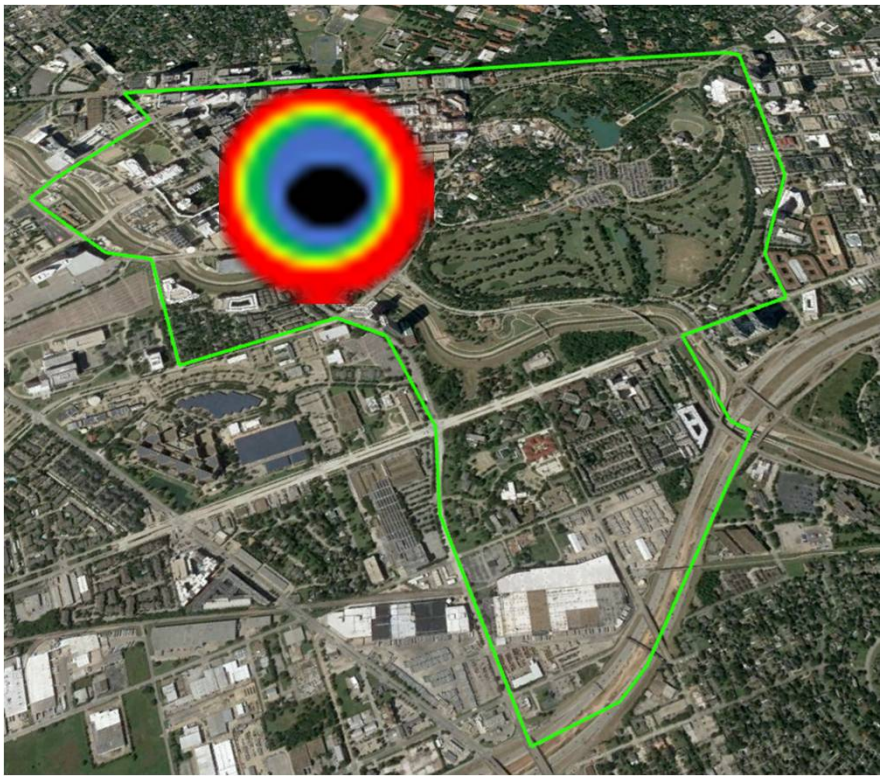


Comparison of the census tract containing the private LTE network at the airport (Green) to PEA (Red), which includes the entire city and the surrounding area



Private LTE Network
Hospital

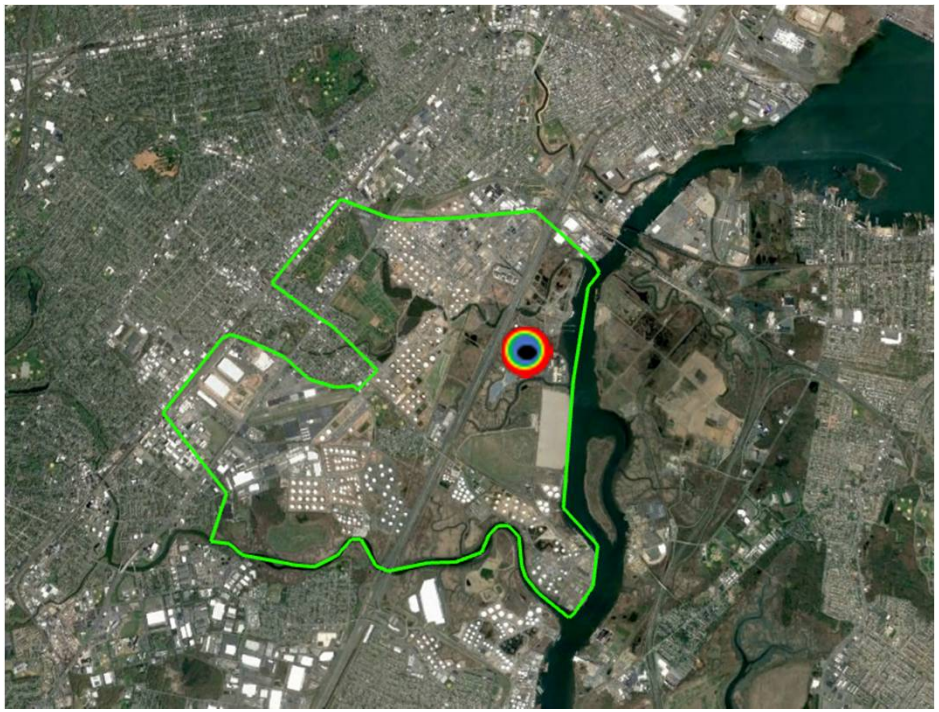
Defined coverage of an indoor Category A CBSD private LTE network deployment at a hospital compared to the census tract containing the network (Green). The deployment site is approximately 1 km across.



Comparison of the census tract containing the hospital private LTE network (Green) to PEA (Red), which includes the entire city and the surrounding area.

Private LTE Network
Power Utility

Defined coverage of an outdoor Category B CBSD private LTE network deployment at a utility service provider compared to the census tract containing the network (Green). The deployment site is about 1 km across.



Comparison of the census tract containing the private LTE network for the utility service provider (Green) to PEA (Red), which includes the entire city and the surrounding areas.